IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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TC

Applicant (s): Joseph Gan, et al.

Serial No.: ~~09/008,983~~ 10/609,090 Group Art Unit: 1712

Filed: ~~January 20, 1998~~ June 27, 2003 Examiner: R. Sellers

For: LATENT CATALYSTS FOR EPOXY CURING SYSTEMS

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I HEREBY CERTIFY THAT THIS CORRESPONDENCE IS BEING DEPOSITED WITH THE UNITED STATES POSTAL SERVICE AS FIRST CLASS MAIL WITH SUFFICIENT POSTAGE IN AN ENVELOPE ADDRESSED TO: ASSISTANT COMMISSIONER FOR PATENTS, WASHINGTON, DC 20231, ON:

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BETH L. WAGNER
PRINT OR TYPE NAME OF PERSON SIGNING CERTIFICATE

Beth L. Wagner
SIGNATURE OF PERSON SIGNING CERTIFICATE

8/22/02
DATE OF SIGNATURE

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

DECLARATION UNDER 37 C.F.R. § 1.132

I, Marc Vogt, declare that:

1. I received a degree in Chemistry from the Technology Institute – Chemistry Department - University of Strasbourg, France in 1973.

2. I have worked for Dow Deutschland, Inc., a subsidiary of The Dow Chemical Company, since 1975 in the field of epoxies.

3. I have read U.S. Patent Application Serial No. 09/008,983 the rejections made by the United States Patent and Trademark Office during the prosecution of U.S. Patent Application Serial No. 09/008,983.

4. During the examination of U.S. Patent Application No. 09/008,983, the Examiner asserted that it would have been obvious to use boric acid as an inhibitor in a formulation with amounts of styrene maleic anhydride (SMA) copolymer of 40 parts

or greater because the primary references teach use of boric acid as an inhibitor in epoxy formulations and, at least some of the secondary references teach use of high amounts of SMA copolymers in epoxy resin formulations.

5. I prepared the compositions described in Table A as follows:

The epoxy resin solution (see Note 1 below) was blended with the corresponding hardener (either dicyandiamide or styrene maleic anhydride) solution (see Note 2 and Note 3 below), inhibitor solution (see Note 4 below) and catalyst solution (see Note 5 below), at room temperature (about 23 °C) for a period of 60 minutes. The resulting homogenous solution was measured for stroke cure reactivity at 170 °C by stroking approximately 2 ml of the solution on a hot plate at 170 °C with a metallic spatula. The time taken for the solution to gel is the stroke cure reactivity. The longer the time the solution takes to gel, the lower is the reactivity of the solution. Table A describes the components on a solids basis.

Table A

Components (solids)	**Example 1**	**Comparative Example A**	**Example 2**	**Comparative Example B**
Epoxy Resin [(1)]	100	100	100	100
Hardener [(2)] [Styrene Maleic Anhydride]	40		40	
Hardener [(3)] [Dicyandiamide]		40		40
Inhibitor [(4)] [Boric Acid]	0.115	0.115	0.023	0.023
Catalyst [(5)] [2E-4 MI]	0.050	0.050	0.010	0.010
Properties				
GEL TIME (seconds) [stroke cure reactivity at 170°C]	178-182	124-128	331-335	130-134

Notes for Table A:

(1) Advanced reaction product of DER*330/tetrabromo bisphenol A (65.5/24.5) which is dissolved in methylethyl ketone (MEK) [80.0% non volatiles (N.V.) in MEK]
(2) SMA*300F solution [50.0% N.V. in Dowanol *PMA/MEK (1/1)]
(3) Dicyandiamide solution [25.0% N.V. in dimethyl foramide solvent]
(4) Boric acid solution [20.0% N.V. in methanol]
(5) 2 Ethyl-4-methyl imidazole catalyst solution [20.0% N.V. in Dowanol *PMA]

6. The Examples and Comparative Examples in Table A show the use of a dicyandiamide crosslinker at 40 parts does not provide the same results as the use of SMA at the same level of 40 parts.

7. It is my opinion that the results of using SMA is surprisingly different from the results using known crosslinkers such as dicyandiamide.

8. The above statements, which are based on my own knowledge, are true. Any of the above statements that are based on information or belief, are believed to be true. These statements were made with the knowledge that willfully false statements are punishable by fine, imprisonment or both under Section 1001 of Title 18 of the United States Code and that such willfully false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: August 16, 2002

M. Vogt

Marc Vogt